was entrusted, is now wholly lost, is as follows: viz., in legacies, 4,102*l.*, and in rent-charges and other annual sums, 79*l.* 15*s.* 2*d.*; 695*l.* of the former of these sums, and 1*l.* 10*s.* of the latter, were left for the poor of the city of Hereford. Of the total amount, 553*l.* in legacies, and 1*l.* 15*s.* in annual sums, were given for educational purposes.

Besides the money donations which are lost, there are several almshouses, pieces of land, &c., the benefit of which has long been denied to the objects for which they were intended. Proceedings in Chancery, however, are now in progress for the recovery of some of them; but with what prospect of a successful result I am not able to state.

Having in a former paper (published in the first volume of the Journal, p. 153) given a table, compiled from the most recent Parliamentary documents, which shews the extent of property applicable to educational and other charitable purposes in 18 counties in England, I now subjoin similar particulars with regard to 8 additional counties in which the enquiries of the Commissioners of Charities have since been completed and reported:—

| COUNTIES. | Population in 1831. | Income for Education. | | | Income for other charitable purposes. | | | TOTAL. | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | £. | s. | d. | £. | s. | d. | £. | s. | d. |
| Cornwall . . . | 300,988 | 982 | 12 | 2 | 2,678 | 10 | 7 | 3,661 | 2 | 9 |
| Derby . . . | 237,170 | 5,381 | 8 | 10 | 10,131 | 18 | 8 | 15,513 | 7 | 6 |
| Devon . . . | 494,478 | 6,578 | 5 | 3 | 22,370 | 6 | 7 | 28,948 | 11 | 10 |
| Hereford . . . | 111,211 | 3,528 | 12 | 3 | 9,624 | 11 | 3 | 13,153 | 3 | 6 |
| Oxford . . . | 152,156 | 1,972 | 16 | 7 | 12,618 | 8 | 8 | 14,591 | 5 | 3 |
| Somerset. . . | 404,200 | 8,413 | 0 | 2 | 33,909 | 9 | 1 | 42,322 | 9 | 3 |
| Worcester . . | 211,365 | 7,816 | 14 | 1 | 12,540 | 1 | 3 | 20,356 | 15 | 4 |
| York . . . . | 1,335,997 | 22,210 | 15 | 6 | 63,621 | 3 | 2 | 85,831 | 18 | 8 |
| Total . . | 3,247,565 | 56,884 | 4 | 10 | 167,494 | 9 | 3 | 224,378 | 14 | 1 |
| Total of the 18 counties enumerated in the former Paper | 4,848,144 | 83,064 | 16 | 11 | 220,603 | 12 | 4 | 303,668 | 9 | 3 |
| Total . . | 8,095,709 | 139,949 | 1 | 9 | 388,098 | 1 | 7 | 528,047 | 3 | 4 |

*On the Sickness and Mortality among the Troops in the United Kingdom. Abstract of the Statistical Report of Major Tulloch.* Prepared by J. W. C. Lever, Esq., F S.S.

[*Read before the Statistical Society of London, 20th May*, 1839.]

In order to investigate the precise extent of sickness and mortality among the troops in this country, it was necessary, first, to examine the medical returns from each corps, in order to ascertain the number of admissions and deaths which took place in the regimental and detachment hospitals, and the diseases by which they were caused; secondly, the Chatham returns, for those who died under treatment there; and, lastly, the annual regimental returns furnished to the War-Office, for the deaths which took place suddenly, or on furlough; and as the last series of these returns was essential in order to arrive at accuracy,

the Report is necessarily confined to the 7 years subsequent to January, 1830, when they were first established. The observations are principally confined to those regiments of Cavalry which have not been serving abroad during the period embraced in the Report, and to the Household Troops, whose service is for the most part confined to the Metropolis.

The Report is divided into several heads, the first embracing the medical and statistical details of the Dragoon Guards and Dragoons; the second, those of the Foot Guards only; and the third, those of the Royal Horse Guards and Life Guards, to which is appended, for the purpose of comparison, some details regarding the mortality and diseases among the depôts of Infantry Corps serving in the West Indies.

As the troops are better lodged, better fed, and have less onerous duties to perform, than the great mass of the labouring population; as, moreover, they are carefully selected, and, so far as can be ascertained, are subject to no physical defect at enlistment, while their profession during peace involves no danger nor hardship, it might be expected that their sickness and mortality would be much lower than among persons engaged in the occupations of civil life. This, however, is not the case; for in the Dragoon Guards and Dragoons the average strength for $7\frac{1}{4}$ years was 6,166; the admissions into hospital 5,725, and the deaths 87. The ratio per 1000 of mean strength admitted was therefore 929, and of the deaths 14. But to the latter must be added, deaths by accident and violence (viz., by suicide 35, murdered 4, drowned 14, and other accidents 6), amounting to 59, or $1\frac{3}{10}$ per 1000 of the strength annually; the average of which, added to 87 by disease, makes the total mortality 95, or $15\frac{8}{10}$ per 1000 annually. This, however, is rather an unfavourable estimate; for during two of the seven years the cholera added considerably to the mortality, and in 1833 and 1836 the influenza was unusually prevalent, cutting off many, and, in others, laying the foundation of pulmonary complaints, which afterwards proved fatal. It is therefore probable that, in other years, the ratio of mortality among this class of troops would be about 2 per 1000 less than the preceding estimate.

The mortality in the Prussian army, on an average of ten years from 1821 to 1830, was $11\frac{7}{10}$ per 1000 annually, but that army is entirely composed of young men between 20 and 25, whilst our troops are for the most part above that age. The mortality in the French army, on an average of six years from 1820 to 1826, amounted to $19\frac{5}{10}$ per 1000 annually; but this may probably include the deaths in corps serving in the Colonies.

Before comparing this rate of mortality with that which prevails among the civil population of the kingdom, it is necessary to ascertain the average age of soldiers, in order that a comparison may be made with civilians at the same period of life. Out of the whole force of Dragoon Guards and Dragoons, it was found that nearly one-third were between 18 and 25 years of age; another third, between 25 and 33; and the remaining third, of various ages between 33 and 40; with the exception of a few boys under 18. The average age of this class of troops is therefore from 29 to 30. By the Carlisle tables, the number annually dying out of 1000 persons of that age would be about 10;

and by Mr. Finlayson's observations, deduced from the duration of life among the Government annuitants, the number is about 13; if, therefore, we take the mean, viz., 11·5 per 1000, we shall find it to correspond very nearly with the ratio deduced from the population returns. Comparing this with the rate of mortality previously ascertained, we find that the proportion of deaths is at least one-third higher among these troops than among an equal number of civilians of the same age. This, at first sight, indicates that the military profession operates prejudicially on the health and constitution of its members; but it may in some degree be explained by the great difference between the mortality in the towns, where the troops are generally quartered, and that in the rural districts; in comparing, therefore, the mortality of military with that of civil life, it is necessary to take for our standard of comparison, not the average of the whole kingdom, but of those towns in which the troops are generally quartered, and where the density of the population is found to operate so prejudicially on health. By examining the necessary data procured from Chester, Leeds, Bolton, Bury, Preston, Wigan, Bradford, Stockport, Macclesfield, York, Hull, Norwich, Plymouth, Portsmouth, Liverpool, Glasgow, and London, it is found that the annual average mortality of 1000 persons between the ages of 15 and 20 is 8; between 20 and 30, 16; between 30 and 40, 18; and between 40 and 50, 21. Thus while the mortality among the Dragoon Guards and Dragoons (supposing the medium age to be 30) has been $15\frac{3}{10}$ per 1000, that of the civil population in the same towns, even between the ages of 20 and 30, has been 16 per 1000—a sufficient evidence that the apparent high ratio among the troops, arises not so much from any deteriorating influence in their profession, as from the disadvantage under which they labour, of being subject to the insalubrious atmosphere of densely populated districts.

We have next to ascertain whether the duties of the military profession at home entail a greater degree of sickness on the troops than usually falls to the lot of the civil population. We have already seen that the admissions into hospital among the Dragoon Guards and Dragoons amounted, on the average of the last seven years, to 929 per 1000 of the mean strength annually: as a general rule, therefore, every soldier is in hospital, for some disease or other, once in every thirteen months. This ratio is probably rather too high, on account of the influenza having twice prevailed as an epidemic during the period. Comparing, however, this with the data obtained by the Factory Commissioners from the Government Dock-yards, we find that out of 6,276, the average number of men annually employed, 2,552 are annually attacked by sickness—the ratio per 1000 being 407. This estimate is rather above than under the average among the working classes throughout the United Kingdom, although from this calculation hurts and injuries received during labour have been omitted in the Returns from the Portsmouth Dock-yard. These are said to amount to 150 per 1000 of the mean strength annually. The striking disproportion between the average of sickness among the Dragoon Guards and Dragoons, and the workmen in the Government Dock-yards, arises from the circumstance that among the troops every case of disease, however slight, is entered in the hospital-book on admission; whereas in the Dock-yards, and among

workmen generally, only those cases are recorded which entirely disable the individuals for labour. This explanation is borne out by the fact that, while the number of attacks of sickness in the Dock-yards was 407, the deaths amounted to 15, per 1000 of the strength. Hence one in 27 of those attacked died; whereas, among the Dragoon Guards and Dragoons, although there were 929 attacks out of every 1000, the deaths from disease were but 14, or 1 in 66 of those attacked. Again, if we investigate the different classes of diseases by which the admissions among the troops have been occasioned, we shall find that out of a total of 41,464 no less than 26,344, or nearly two-thirds of the whole, were of that class which seldom prove so serious as to incapacitate a person for the labour of civil life, and for which, were it optional on the part of the soldier, he would probably never have submitted to the confinement of an hospital.

The large proportion of suicides among this class of the military deserves particular attention. Out of a total of 686 deaths, no less than 35, or upwards of 1 in 20 of the whole, have arisen from this cause alone, independent of many attempts which did not prove fatal: whereas, among persons insured in the "Equitable," the proportion is only 1 in 110 of the deaths. It will be interesting to compare the tendency to self-destruction in the army with the proportion of suicides in civil life, in different countries, as stated by Quetelet:—

| | | | |
|---|---|---|---|
| In Russia | There is 1 suicide annually to | 49,182 | inhabitants. |
| Austria | | 20,900 | |
| France | | 18,000 | |
| State of Philadelphia | | 15,875 | |
| Prussia | | 14,404 | |
| State of Baltimore | | 13,656 | |
| ,, Boston | | 12,500 | |
| ,, New York | | 7,797 | |
| Dragoon Guards and Dragoons of the United Kingdom | | 1,274 | |

In cities where a large proportion of military are quartered the ratio of suicides is greater than in the whole population of a country, but still much below that among our troops. In the department of the Seine (Paris), between 1817 and 1825, the suicides averaged annually 1 in 2,400 inhabitants; in Berlin, from 1813 to 1822, 1 in 2,941; in Geneva, from 1820 to 1826, 1 in 3,900; and in London, 1 in 5,000 inhabitants. Assuming, therefore, the very highest average in civil life in this country, suicides are at least five times as numerous among this class of the military. At the same time we must bear in mind that instances of self-destruction rarely occur among persons under the age of 18, and are by no means so frequent among females as males, which circumstances must materially influence any comparison between its prevalence among a population of all ages and sexes, and a select body of troops from 18 to 40 years of age.

*Foot Guards.*—The medical returns not being all sufficiently minute in their details, the usual particulars with regard to the number of admissions cannot be furnished. The total strength of the Foot Guards, for $7\frac{1}{4}$ years, was 34,538; the number of deaths 745; the average strength 4,764; and the average deaths 103. The mortality per 1000 of the strength annually was therefore $21\frac{6}{7}$, or nearly one-half higher than

among the Dragoon Guards and Dragoons. This is the more remarkable, as the climate of London is not more insalubrious than many of the other great towns; the average annual mortality of the civil population between the ages of 20 and 40 being under 15 per 1000, and that of the East India Company's labourers as low as 12½ per 1000, at the same period of life.

From the returns of the Metropolitan Police Force, notwithstanding all the disadvantages of frequent night-duty, to which that class of men is exposed, the mortality, out of an average strength of 3,400 constantly employed, has been but 30 per annum, being under 9 per 1000; in addition to which, nearly the same proportion has been invalided for bad health. Many, however, leave the service of their own accord, if they find it proving injurious to their constitution.

The principal diseases to which this high ratio of mortality is attributable are diseases of the lungs, amounting to 14·1 per 1000 of the mean strength; whereas the mortality from diseases of the lungs, among the Dragoon Guards and Dragoons, amounts only to 7·7 per 1000 annually of the mean strength. The ratio of deaths from all other diseases, or causes of death, is 7·5 per 1000 in the Foot Guards, and 7·6 per 1000 in the Dragoon Guards and Dragoons. That this high ratio of mortality does not arise from residence in the metropolis, appears from calculations deduced from the London Bills of Mortality from 1830 to 1835; for out of 1000 deaths among the civil population, the number from diseases of the lungs was 328, scarcely one-third of the whole, while, out of 745 deaths among the Foot Guards, no less than 487, or upwards of two-thirds were from these diseases. But a much more conclusive proof is, that the Household Cavalry, which is also quartered in the metropolis, evinces no such peculiarity. The total strength of the Household Cavalry, for 7¼ years, was 8,649 men, the total number of deaths for the same period was 125. The average annual strength was 1,193, the annual deaths 17; therefore, the ratio of deaths per 1000 of the mean strength was 14·5. It will be seen that the mortality is not so high by at least one-half as among the Foot Guards, and even lower, by a small fraction, than among the Cavalry Corps employed throughout the kingdom. Among the Household Cavalry the annual ratio of deaths per 1000 of the mean strength from diseases of of the lungs is 8·1, that of the Foot Guards being 14·1. This difference cannot arise from the Foot Guards being in a greater degree exposed on night-duty, for among the troops of the line serving at home, and whose constitutions have been deteriorated by residence in tropical or unhealthy climates, the mortality by diseases of the lungs is much lower. This is strongly exhibited by comparing the mortality among the depôts of corps serving in the West Indies, which may be supposed to be higher than the average among infantry in this kingdom. The average annual mean strength of these depôts is 3,246, the annual deaths 60; therefore the ratio of deaths per 1000 is 18·5, while that of the Foot Guards is 21·6. In comparing this mortality with that in the Foot Guards, the most unfavourable specimen of the troops of the line is taken, among whom, in years of ordinary health, the ratio at home does not exceed 15 per 1000, which is found to have been the average among all the troops in Ireland during a period of 32 years. The mortality

among the depôts from diseases of the lungs was 9·6 per 1000 of the mean annual strength. These depôts, however, appear to have suffered twice as much from fever as the Cavalry or Household Troops, but most probably many of the deaths occurred among men who had previously suffered from the same cause in the West Indies.

*General Results.*—Having thus ascertained the fatal diseases among the four different classes of troops serving in the United Kingdom, as well as among a select body of individuals in civil life, we may draw a fair standard for estimating the relative mortality by the same diseases among troops in the Colonies.

*Fevers.*—The proportion of deaths which occur annually, by this class of diseases, approximates very nearly in all the above classes of troops except the last.

| | Per 1000 of Strength. |
|---|---|
| In the Dragoon Guards and Dragoons it was ascertained to have been | 1·4 |
| Household Cavalry | 1·6 |
| Civil Life | 1·6 |
| Foot Guards | 1·7 |
| West India Depôts | 2·8 |

Excluding the last, for the reason already stated, and taking the average of the four others, 1·6 per 1000 may be computed to die annually from fever. The admissions were about 75 per 1000 annually, and the proportion of deaths to admissions appears to be about 1 in 55.

From an extensive series of observations it appears that, among troops serving in this kingdom, fevers are more prevalent during the summer than the winter months, in the proportion of 5 to 4. Of 4,499 attacks, 2,531, or 56 per cent., occurred between May and October; and only 1,968, or 44 per cent., during the rest of the year. In 1832 and 1834, however, the preponderance of febrile cases was in those months which in other years were most exempt from them. In civil life in this country, fevers are more prevalent in summer, but more fatal in winter.

*Eruptive Fevers.*—This class of diseases, once such a prolific source of mortality, is now of very rare occurrence in the army, the proportion being as follows:—

| | Per 1000 of Strength. | |
|---|---|---|
| In the Dragoon Guards and Dragoons | $\frac{1}{10}$ | or 1 in 10,000 |
| Household Cavalry | $\frac{2}{10}$ | ,, 2 ,, |
| West India Depôts | $\frac{2}{10}$ | ,, 2 ,, |
| Foot Guards | $\frac{3}{10}$ | ,, 3 ,, |

Taking the average, it may be estimated that two-tenths per 1000, or 2 out of every 10,000, of the troops die annually from this class of diseases.

The admissions amount to 3 per 1000 annually, and the proportion of deaths to admissions is 1 in 15.

*Diseases of the Lungs.*—If the mortality in the Foot Guards, which must be considered an exception, be excluded from the comparison, the loss in the other corps by this class of diseases, approximates so nearly, that there is little difficulty in fixing an average.

| | Per 1000 of Strength. |
|---|---|
| In the Dragoon Guards and Dragoons it amounts annually to | 7·7 |
| Household Cavalry | 8·1 |
| West India Depôts | 9·6 |
| Foot Guards | 21·6 |

As some part of the excess in the West India depôts may probably be attributable to the climate of the West Indies, which has a much greater tendency to induce consumption than that of this country, we may assume that the average mortality from diseases of the lungs throughout our army, exclusive of the Foot Guards, is about 8 per 1000 annually. The ratio of admissions is 148 per 1000, and the proportion of deaths to admissions may be estimated at 1 in 19. Of the fatal cases of diseases of the lungs, nearly four-fifths arise from consumption, being as many as from all other causes in the army at home.

The highest estimates in civil life rate the mortality from this disease at one-seventh of the deaths at all ages; or, if the observation be confined to adults alone, it may possibly amount to one-fourth part, which, at the utmost, is only half as high as among the troops.

*Diseases of the Liver.*—This class of diseases is of very rare occurrence, and productive of but little mortality, among our army in this country.

| | Per 1000 of Strength. | | |
|---|---|---|---|
| In the Foot Guards the annual ratio of deaths is . | $\frac{1}{10}$ | or 1 | in 10,000 |
| West India Depôts . . . . . | $\frac{1}{10}$ | ,, 1 | ,, |
| Civil Life . . . . . | $\frac{3}{10}$ | ,, 3 | ,, |
| Dragoon Guards and Dragoons . . . . | $\frac{4}{10}$ | ,, 4 | ,, |
| Household Cavalry . . . . . | $\frac{5}{10}$ | ,, 5 | ,, |

We may assume 3 in 10,000, the ratio in civil life, as the standard of mortality. The ratio of admissions is about 8 per 1000 annually, and the proportion of deaths to admissions 1 in 18.

*Diseases of the Stomach and Bowels.*—The mortality from these diseases has been as follows:—

| | Per 1000 of Strength. | | |
|---|---|---|---|
| In the Household Cavalry the annual ratio of deaths was | $\frac{3}{10}$ | or 3 | in 10,000 |
| West India Depôts . . . . . | $\frac{4}{10}$ | ,, 4 | ,, |
| Foot Guards . . . . . | $\frac{7}{10}$ | ,, 7 | ,, |
| Dragoon Guards and Dragoons . . . . . | $\frac{8}{10}$ | ,, 8 | ,, |
| Civil Life . . . . . | $\frac{8}{10}$ | ,, 8 | ,, |

We may therefore take the average of the whole at about five-tenths per 1000, or 5 in 10,000, annually. The admissions amount to 94 per 1000 annually, but only 1 in 131 cases proves fatal. Out of 1,649 attacks, of which the dates have been recorded, 649 were in August, September, and October, being twice as many as the average of the other months of the year.

*Epidemic Cholera.*—The estimate of mortality by this disease is calculated upon the aggregate strength of the seven years, as if it had occurred annually. In this case the proportion of deaths caused by it annually would have been—

| | |
|---|---|
| Of Dragoon Guards and Dragoons . . | 1·2 per 1000 annually. |
| Foot Guards . . . . . | 1·2 ,, |
| West India Depôts . . . . . | 1·2 ,, |
| Household Cavalry . . . . . | 1·3 ,, |

During the three years that this disease prevailed, about 2·8 per 1000 of the strength were annually cut off by it. This epidemic seems to have exerted its fatal influence in all localities with undeviating regularity; for we have here instances of different bodies of troops quartered

in various situations throughout the kingdom, and yet the proportion of deaths is within a fraction the same in all; but it did not prove equally fatal to all classes, the mortality having increased progressively with the advance of age, as is shewn by the following table:—

| AGES. | Aggregate Strength of Cavalry and Household Troops during the 3 Years in which Cholera prevailed. | Deaths by Cholera in that Force during the 3 Years. | Annual Rate of Mortality by Cholera at each Age. |
|---|---|---|---|
| Under 18 | 548 | .. | .. |
| 18 to 25 | 14,103 | 32 | 2·3 |
| 25 ,, 33 | 13,336 | 33 | 2·5 |
| 33 ,, 40 | 7,223 | 29 | 4· |
| 40 ,, 50 and upwards | 2,229 | 11 | 4·9 |
| Total | 37,439 | 105 | 2·8. |

Of 171 treated for this disease among the Dragoon Guards and Dragoons, 54 died, or about one-third of the whole number attacked. Among the other troops the proportion was much the same.

*Diseases of the Brain.*—In this class of diseases the results have been very uniform, and are as follows:—

| | Per 1000 of Strength. | | |
|---|---|---|---|
| In the West India Depôts there died annually | $\frac{6}{10}$ | or | 6 in 10,000 |
| Dragoon Guards and Dragoons | $\frac{7}{10}$ | ,, | 7 ,, |
| Household Cavalry | $\frac{9}{10}$ | ,, | 9 ,, |
| Foot Guards | 1· | ,, | 10 ,, |

Assuming eight-tenths per 1000, or 8 in 10,000, as the standard of the annual extent of mortality, it is found to be only half the proportion which occurs in civil life, as shewn by the "Equitable" tables. The proportion of admissions was about 6 per 1000 of the strength annually, and the proportion of deaths to admissions was 1 in 9.

*Dropsies.*—The results in this class of diseases also approximate very nearly. They are as follows:—

| | Per 1000 of Strength. | | |
|---|---|---|---|
| In the Dragoon Guards and Dragoons there died annually | $\frac{3}{10}$ | or | 3 in 10,000 |
| Household Cavalry | $\frac{3}{10}$ | ,, | 3 ,, |
| West India Depôts | $\frac{4}{10}$ | ,, | 4 ,, |
| Civil Life | $\frac{4}{10}$ | ,, | 4 ,, |
| Foot Guards | $\frac{5}{10}$ | ,, | 5 ,, |

Four-tenths per 1000, or 4 in 10,000, is assumed as the standard. The proportion of admissions is little more than 1 per 1000 of the strength, and the deaths are about 1 in 4 of the admissions.

### *Of the number constantly Sick in Hospital among Troops serving in the United Kingdom.*

From the abstract of the average number daily sick in each regiment of Dragoon Guards and Dragoons, it appears that the number constantly sick is only about 37 per 1000 of the force, but making allowance for the omissions caused by there being no returns of the sick in detachments having no medical officer in charge, we may increase the average to 40 per 1000. This corresponds with the result of 24 monthly musters in 1823 and 1824, referred to by Mr. Finlayson in his evidence on Friendly Societies. From these results, combined with the information previously referred to in regard to the number of admissions, we can

ascertain the average period each soldier is sick in the course of the year, and the average duration of each attack of sickness. $40 \times 365$ shews the total days of sickness among 1000 soldiers, $= 14{,}600$, which is about $14\frac{1}{2}$ days to each soldier. Dividing 14,600 by 929, the number of admissions into hospital, we have 16 days as the average duration of each attack of sickness.

*On the Influence of Age upon the Mortality of Troops serving in the United Kingdom.*

From the following table, shewing the aggregate strength of the Dragoon Guards and Dragoons at each age, in returns of 7 years, as well as their total deaths at each age, we find that the mortality increases progressively with the advance of age, but not so rapidly as in the West India stations. The numbers under 18 are too low to warrant any further conclusion than that they corroborate former results as to the comparative exemption from mortality of persons at that early period of life.

| AGES. | Aggregate Strength at each Age, in Returns of 7 Years. | Total Deaths at each Age, in Returns of 7 Years. | Annual Ratio of Deaths per 1000 Living at each Age. |
|---|---|---|---|
| Under 18 | 455 | 2 | 4·4 |
| 18 to 25 | 15,320 | 213 | 13·9 |
| 25 ,, 33 | 15,919 | 222 | 14· |
| 33 ,, 40 | 8,549 | 148 | 17·3 |
| Above 40 | 2,920 | 78 | 26·7 |
| Total | 43,163 | 663 | 15·3 |

It will be found that the mortality among this class of troops increases with the advance of age, in nearly the same proportions as in civil life.

The following table shews the influence of age on mortality among the Foot Guards:—

| AGES. | Aggregate Strength at each Age, in Returns of 7 Years. | Total Deaths at each Age, in Returns of 7 Years. | Annual Ratio of Deaths per 1000 Living at each Age. |
|---|---|---|---|
| Under 18 | 490 | 3 | 6·1 |
| 18 to 25 | 11,778 | 263 | 22·3 |
| 25 ,, 33 | 12,470 | 280 | 22·5 |
| 33 ,, 40 | 6,637 | 118 | 17·7 |
| Above 40 | 2,035 | 56 | 27·5 |
| Total | 33,410 | 720 | 21·6 |

It will thus be seen that the mortality falls in a much higher proportion on soldiers between 18 and 25, and 25 and 33, in the Foot Guards than in the Dragoon Guards and Dragoons, while between 33 and 40, in both forces, the mortality is nearly equal. This may arise from a larger proportion being annually discharged for disabilities in the Foot Guards than in the Cavalry; therefore, the few who are left above 33 must be more select in the former than in the latter. The increased ratio of mortality in the Foot Guards between 18 and 33 cannot depend upon the mere influence of climate, as we find on examination of the London Bills of Mortality and the returns of the East India Company's labourers.

| AGES. | Died annually per 1000 of Living. By London Bills of Mortality. | By Returns of East India Company's Labourers. |
|---|---|---|
| From 20 to 30 | 12·2 | 8·2 |
| ,, 30 ,, 40 | 16·9 | 14·8 |
| ,, 40 ,, 50 | 25·4 | 24·3 |

Nor does it depend upon the extent of night-duty; as in the Metropolitan Police, who have more severe night-duty to perform, neither the mortality nor the invaliding is half so high as in the Foot Guards. In the Household Cavalry the mortality increases progressively with the advance of age, except between 18 and 25, when it is a little higher than at the succeeding period of life, as is shown by the following table:—

| AGES. | Annual Ratio of Deaths per 1000 Living at each Age. | |
|---|---|---|
| Under 18 | 8·4 | |
| 18 to 25 | 14·7 | |
| 25 ,, 33 | 11·4 | Average 14·5. |
| 33 ,, 40 | 16·3 | |
| Above 40 | 22·8 | |

*On the Influence of the Seasons in producing Sickness and Mortality among the Troops in the United Kingdom.*

The returns of the Household Troops not being sufficiently minute in their details, the investigation has comprised only the Dragoon Guards and Dragoons during a period of seven years. The total number of admissions was 39,461, viz., 15,202 by acute diseases, 3,679 by chronic diseases, and 20,580 by surgical diseases. The month in which there was the greatest number of admissions was August; the other months follow in the annexed order, July, May, September, June, and October—being the six hottest months;—then December, January, April, March, February, and November. The total number of deaths was 499, viz., 264 by acute diseases, 193 by chronic diseases, and 42 by surgical diseases. The greatest mortality occurred in May. The other months follow thus—April, August, March, July, November, December, and September (equal), January and October (equal), June and February. The omissions in the deaths, as stated in the Medical Returns, compared with the War Office Returns, are no less than 164, or nearly one-fourth of the whole number. A great portion of these consists of men who have died, on furlough, of chronic diseases, principally consumption, or from accidents.

Of every 1000 admissions and deaths from acute diseases only, among the Dragoon Guards and Dragoons, the number occurring in each month was—

| | Admissions by Acute Diseases only. | Deaths by Acute Diseases only. | | Admissions by Acute Diseases only. | Deaths by Acute Diseases only. |
|---|---|---|---|---|---|
| January. . | 85 | 68 | July. . . | 88 | 91 |
| February . | 76 | 49 | August . . | 107 | 110 |
| March . . | 71 | 80 | September . | 93 | 98 |
| April . . | 77 | 72 | October. . | 81 | 83 |
| May. . . | 88 | 117* | November . | 70 | 76 |
| June . . | 84 | 80 | December . | 80 | 76 |
| | | | Total . | 1000 | 1000 |

It will thus be seen, that notwithstanding the large proportion of diseases which are attributed to the changeable nature of this climate, the smallest number of attacks of sickness among the troops occurs during the fogs and gloom of November, and through the winter they

* In May the deaths were raised above the usual average by the prevalence of cholera among the troops during that month in 1833.

are considerably under the average; while during the months of July, August, and September, the proportion of sickness attains its maximum. April and May prove peculiarly fatal to chronic cases among the troops in this kingdom; but at least nine-tenths of these are from consumption. It might be supposed that these results are influenced by the furloughs which commanding officers are permitted to grant between the 1st November and 10th March, to the extent of 10 per troop or company; but by the returns of January last, which may be assumed as a fair average, only 2½ per cent. of the Cavalry force, and 5 per cent. of the Infantry, were absent on furlough.

Whatever may be the causes which give such an unhealthy character to the autumnal season, they operate no less powerfully in the French army than in our own; but they seem to be a month later in coming into action, and continue for a month longer than in this country. This may arise from a difference in the periods embraced in the return, according to the time to which they are made up. According to M. Quetelet, the autumnal months, instead of being, as in the army, the most fatal, are, in civil life, the reverse, at those periods of life corresponding to the average ages of our soldiers.

It has been stated by Mr. Edmonds, in his paper "On the Sickness and Mortality of London Artisans," that the minimum quarterly sickness was in the three months, May, June, and July; and that the maximum quarterly sickness was in the three months, January, February, and March—the maximum being to the minimum in the proportion of 4 to 3.

If there exists that difference in the liability to disease at the same seasons, between the military and civil population of the same city, as these various returns would lead us to suppose, there must be some secret agency which has hitherto eluded detection. To the medical man, therefore, who ought to be the preserver as well as the licensed restorer of the public health, we must look, to determine the nature of that influence which the statistician has proved to exist.

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*Statistics of the Tin-Mines in Cornwall, and of the Consumption of Tin in Great Britain.* By Joseph Carne, Esq., F.R.S., &c.

The commencement of tin-mining in Cornwall lies far beyond the period of authentic history; but for ages, and even perhaps until within the last two or three centuries, all the Cornish tin was produced, either from diluvial ores (known by the name of stream-tin) or from deposits (either in veins or in floors*) near the surface. The word *mining* can only be applied to the latter, in which all the operations must have been open to the sun. There are in different parts of Cornwall many extensive chasms which bear evidence to this early mode of mining. The number of people employed in these operations must have been very small in comparison with the number required to produce the same quantity of tin-ore on the present system of mining, and the consumption of articles, now so necessary in mining operations, must have been very limited.

* Horizontal beds, usually connected with veins.